

REMARKS

The Office Action dated June 9, 2004, has been received and carefully noted. The amendments made herein and the following remarks are submitted as a full and complete response thereto.

Claims 1 and 10 have been amended. Applicant submits that the amendments made herein are fully supported in the specification and the drawings as originally filed, and therefore no new matter has been added. Accordingly, claims 1-8 and 10-16 are pending in the present application and are respectfully submitted for consideration.

Claims 1-8 and 10-16 as Amended Recite Patentable Subject Matter

Claims 1, 2, 4, 7, 8, 10, 12, 13 and 16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Katoh et al. (U.S. Patent No. 5,796,430, "Katoh") in view of Pape et al. (U.S. Patent No. 5,047,863, "Pape"). Applicant respectfully traverses the rejection and submits that each of claims 1, 2, 4, 7, 8, 10, 12, 13 and 16, as amended recites subject matter that is neither disclosed nor suggested in the cited prior art.

Amended claim 1 recites an image processing apparatus for processing image data supplied from an image sensor having, among other features, a delay circuit having a first input for receiving image data sequentially supplied from the image sensor, a first function circuit for delaying the received image data by a time required for defect correction process, and a first output for supplying each of the delayed image data; a memory having a first field for storing image data of one frame and a second field for storing position data of a defective pixel of the image sensor; and a defect correction circuit having a second input for receiving the image data supplied from the image sensor, a second function circuit for forming corrected image data for each pixel

based on image data of pixels adjacent to a pixel of interest, and a second output for supplying each of the corrected image data.

Amended claim 10 recites an image processing method including, among other steps, the steps of (b) sequentially fetching the image data from the image sensor, giving a delay, and supplying the delayed image data as an output; and (d) forming corrected image data for each pixel based on image data of pixels adjacent to a pixel of interest and supplying the corrected image data as an output.

Applicant respectfully submits that Katoh in view of Pape fails to disclose or suggest at least such features of claims 1 and 10, as amended.

Katoh discloses a video camera having “a lens 101, an iris 102, a sync signal generating circuit 103, a solid state image pickup device 104, an automatic gain control circuit (AGC circuit) 105, an analog/digital converting circuit (A/D converter) 106, a white spot noise correction circuit 107, a signal processing circuit 108, a digital/analog converting circuit (D/A converter) 109, and a memory 110. The light which enters from the lens 1 is converted into the electric signal by the solid state image pickup device 104.” See column 3, lines 29-38.

Pape discloses a circuit 10 “for detecting and correcting pixel defects in a charge injection device 12 (CID) in the form of an array of light sensitive elements or pixels 14.” See column 3, lines 34-37. Pape also shows that “an absolute measure of the dark current or fixed pattern noise associated with each pixel 14 in the CID 12 is first established by shuttering the CID 12 and reading dark pixel data of each pixel 14 produced thereby into a frame buffer 16. A digital representation of the dark current of

each pixel 14 is stored in the frame buffer 16 at addresses corresponding to the location of each pixel 14 in the CID array 12.” See column 3, lines 38-46.

As a preliminary matter, Applicant agrees with the Office Action’s admission that Katoh does not explicitly teach the feature of “a memory having a first field for storing image data of one frame and a second field for storing position data of a defective pixel of the image sensor.” However, to the extent applicable to the claims as amended, Applicant traverses the Office Action’s position that Pape teaches that the limitation is well known and used in the art.

In particular, Pape discloses a device by which, if a pixel in the frame buffer is above a threshold value, it is replaced by the pixel value of the previous pixel. However, Pape fails to disclose or suggest a second field that stores the position data of a defective pixel, as claimed in claims 1 and 10, as amended.

Moreover, Katoh merely teaches that the corrected image data replaces the defective data in the data sequence being delayed, showing that the delay circuit either provides the delayed data or provides the corrected data, rather than the corrected data for each pixel being outputted while the delayed image data is also being outputted, as claimed in claims 1 and 10, as amended.

To establish *prima facie* obviousness, each feature of a rejected claim must be taught or suggested by the applied art of record. See M.P.E.P. §2143.03 and In re Royka, 490 F.2d 981 (CCPA 1974). As explained above, Katoh and Pape, alone or in combination, do not teach or suggest each feature recited in claims 1 and 10. Accordingly, for at least the above reasons, Applicant respectfully submits that claims 1

and 10 are not rendered obvious under 35 U.S.C. § 103 in view of Katoh and Pape. Hence, claims 1 and 10 are allowable.

In addition, as claims 2, 4, 7 and 8 depend from claim 1, and as claims 12, 13 and 16 depend from claim 10, Applicant submits that each of these claims incorporates the patentable aspects therein and are therefore allowable for at least the reasons set forth above with respect to the independent claims, as well as for the additional subject matter recited therein.

Applicant respectfully requests withdrawal of the rejection.

Claims 3, 5-6 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Katoh in view of Pape and further in view of Rambaldi et al. (U.S. Patent No. 6,618,084, "Rambaldi"). Applicant respectfully traverses the rejection and submits that each of claims 3, 5-6 and 11 recites subject matter that is neither disclosed nor suggested in the cited prior art.

As claims 3, 5-6 depend directly or indirectly from claim 1, and as claim 11 depends directly or indirectly from claim 10, each of these claims incorporates each and every limitation recited within claims 1 and 10, respectively, therein. Therefore, claims 3, 5-6 and 11 are allowable for at least the reasons set forth with respect to the independent claims, as well as for the additional subject matter recited therein.

Applicant respectfully requests withdrawal of the rejection.

Claims 14 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Katoh in view of Pape and further in view of Tabei (U.S. Patent No. 5,805,216). Applicant respectfully traverses the rejection and submits that each of claims 14 and 15 recites subject matter that is neither disclosed nor suggested in the cited prior art.

As claims 14 and 15 depend directly or indirectly from claim 10, each of these claims incorporates each and every limitation recited within claim 10, respectively, therein. Therefore, claims 14 and 15 are allowable for at least the reasons set forth with respect to the independent claims, as well as for the additional subject matter recited therein.

Applicant respectfully requests withdrawal of the rejection.


Conclusion

In view of the above, Applicant respectfully submits that each of claims 1-8 and 10-16 recites subject matter that is neither disclosed nor suggested in the cited prior art. Applicant also submits that this subject matter is more than sufficient to render the claims non-obvious to a person of ordinary skill in the art, and therefore, respectfully requests that claims 1-8 and 10-16 be found allowable and that this application be passed to issue.

If for any reason, the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact the Applicant's undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper has not been timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing docket number 107317-00003**.

Respectfully submitted,



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